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TI Fuel cells with improved cooling plates
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AB Cooling plates for fuel-cell stacks have an ***expanded*** ***graphite*** layer which contains embedded cooling tubes, nonpermea ***graphite*** sheets attached to the edges of the ***graphite*** layer in parallel with the tubes, and glassy C sheets covering on the opposite faces of the ***graphite*** layer. The nonpermeable graph sheets are impregnated with resol, fluoropolymer (PTFE, C2F4-perfluorovinyl ether copolymer, C2F4-C3F6 copolymer, or C2H4-C2F4 copolymer), or fluororesin paint. Thus, oxidized ***graphite*** flakes were quickly heated to 950-1000.degree. to form ***expanded*** ***graphite*** , pressed to form 12-mm-thick sheets, 2 sheets with cooling pipe in between were hot pressed to form a 3.8-mm-thick layer w embedded cooling tubes. This layer was attached to a top and bottom 0.6-mm-thick glassy C sheet and 1 nonpermeable graphite sheet of the sa thickness on each side in parallel with the cooling tubes and between t top and bottom glassy C sheets by a resol binder to obtain a cooling plate, whose resp. thickness and wt. were 1 half and 30% of those of a control plate.